Newzen Consultants Bangalore

NZ/QC/YPD/T&F-W3/2018-19/P2-DS1 **Date: 24-04-2018**

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1172**	900
2	Marshall Flow at 60°C, mm.	**3.34**	2.0 - 4.0

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NZ/QC/YPD/T&F-W3/2018-19/P2-DM2 Date: 27-04-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.51 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.33**	90-100
19.0	**88.25**	71-95
13.20	**75.12**	56-80
4.75	**48.22**	38-54
2.36	**32.66**	28-42
0.300	**17.45**	7-21
0.075	**6.45**	2-8

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NZ/QC/YPD/T&F-W3/2018-19/P2-DS2 Date: 28-04-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1158**	900
2	Marshall Flow at 60°C, mm.	**3.53**	2.0 - 4.0

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49

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NZ/QC/YPD/T&F-W3/2018-19/P2-DM3

Date: 28-04-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.56 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**97.23**	90-100
19.0	**89.56**	71-95
13.20	**76.43**	56-80
4.75	**47.24**	38-54
2.36	**33.71**	28-42
0.300	**18.23**	7-21
0.075	**6.95**	2-8

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NZ/QC/YPD/T&F-W3/2018-19/P2-DS3

Date: 30-04-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1176**	900
2	Marshall Flow at 60°C, mm.	**3.15**	2.0 - 4.0

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51

Newzen Consultants Bangalore

NZ/QC/YPD/T&F-W3/2018-19/P2-DM4 Date: 02-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.51 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.27**	90-100
19.0	**88.19**	71-95
13.20	**75.35**	56-80
4.75	**48.87**	38-54
2.36	**32.89**	28-42
0.300	**17.34**	7-21
0.075	**7.10**	2-8

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NZ/QC/YPD/T&F-W3/2018-19/P2-DS4 Date: 03-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1099**	900
2	Marshall Flow at 60°C, mm.	**3.81**	2.0 - 4.0

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NZ/QC/YPD/T&F-W3/2018-19/P2-DM5 Date: 03-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.55 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.87**	90-100
19.0	**88.58**	71-95
13.20	**73.23**	56-80
4.75	**48.63**	38-54
2.36	**32.90**	28-42
0.300	**17.45**	7-21
0.075	**6.77**	2-8

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NZ/QC/YPD/T&F-W3/2018-19/P2-DS5 Date: 04-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1162**	900
2	Marshall Flow at 60°C, mm.	**3.52**	2.0 - 4.0

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NZ/QC/YPD/T&F-W3/2018-19/P2-DM6 Date: 04-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.51 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**96.43**	90-100
19.0	**89.24**	71-95
13.20	**73.66**	56-80
4.75	**48.22**	38-54
2.36	**31.65**	28-42
0.300	**17.88**	7-21
0.075	**6.48**	2-8

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NZ/QC/YPD/T&F-W3/2018-19/P2-DS6 Date: 05-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1182**	900
2	Marshall Flow at 60°C, mm.	**3.62**	2.0 - 4.0

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57

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NZ/QC/YPD/T&F-W3/2018-19/P2-BB1

Date: 02-05-2018

1. TEST REPORT ON BITUMEN SAMPLE:

Sub: Testing of Bitumen sample VG-30 Grade used in Bituminous Concrete.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

Technical Reference: Ministry of Road Transport and Highways, V Revision, 2013 and IS 73: 1992.

TABLE 1.1 ;

SL No	Details	Test Results	Requirements as per I.S 73 –1992 Specifications
1.	Penetration at 25^0 C	**59.00^0 C**	Min. 45
2.	Ductility Value at 25^0 C	**121 cm**	40
3.	Flash point	**228^0 C**	Minimum 220^0 C
4.	Softening point	**52.33^0 C**	Min. 47

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NZ/QC/YPD/T&F-W3/2018-19/P2-CB1 Date: 02-05-2018

1. TEST REPORT ON COARSE AGGREGATE:

Sub: Testing of Coarse Aggregate used in Bituminous Concrete.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TABLE 1.1 ;

SL No	Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
1.	Aggregate Impact Value	**22.20 %**	Not more than 24.00 %
2.	Combined Flakiness and Elongation index, %	**24.66 %**	Not more than 35.0 %
3.	Water absorption, %	**0.44 %**	Not more than 2.0 %
4.	Specific gravity	**2.63**	------
5.	Soundness	**6.72 %**	Max. 12 % in Sodium Sulphate

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NZ/QC/YPD/T&F-W3/2018-19/P2-BC1 Date: 07-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.46 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**97.81**	90-100
9.5	**84.23**	70-88
4.75	**66.44**	53-71
2.36	**55.13**	42-58
1.18	**43.82**	34-48
0.600	**32.56**	26-38
0.300	**23.57**	18-28
0.150	**15.76**	12-20
0.075	**7.25**	4-10

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60

Newzen Consultants Bangalore

NZ/QC/YPD/T&F-W3/2018-19/P2-BS1 Date: 08-05-2018

1.TEST REPORT ON BITUMINOUS MIXES :

(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.

{Project*: Package-2 1.Improvement of drains and resurfacing to roads in Hindu Samaja Road and Surrounding Sirke Apartment area in ward no.03, Attur. 2.Improvements of Roads at Adithyanagara in ward no 03. 3.Improvements of Roads And Drains at Santhosh Nagara and Muneshwara Nagara In ward no 03, Attur.}

Ref.: Material testing/PMC/17-18,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: Sri. Naveen Rao N (M/s Nischal Constructions).

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1339**	900
2	Marshall Flow at 60°C, mm.	**3.36**	2.0 - 4.0

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